

-
-
-
-
-
-

High efficiency energy concepts at the federal building projects in Berlin

Dr.-Ing. Uwe Römmling

Dipl.-Ing. Jan Albers

Institut für Erhaltung und Modernisierung von
Bauwerken e.V. an der TU Berlin

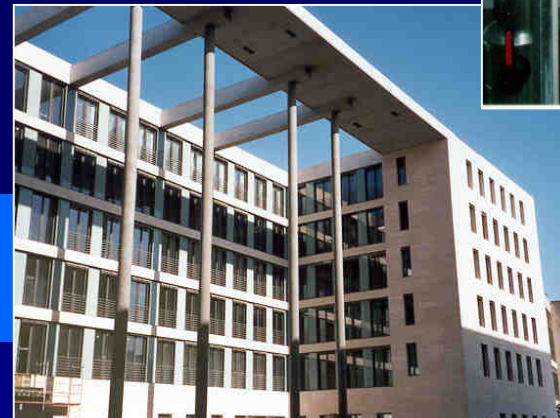


IEMB - Institute for Rehabilitation and Modernisation of Buildings at the TU Berlin

Research at the EEB-Division:
Energy conservation, Reduction of emissions, Construction physics

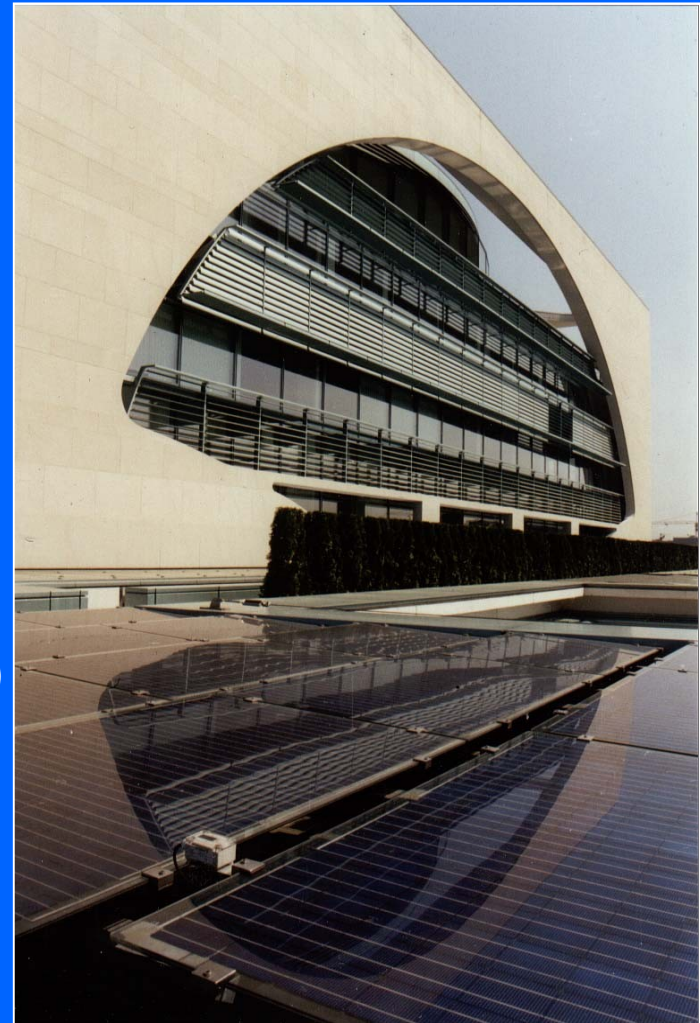


- Laboratory and outdoor measurements
 - Room heating appliances
 - Air ventilation systems
 - Solar air conditioning
 - Building integrated PV Systems
- Energy Commissioner for Federal Building Works in Berlin
- Accompanying researches for policy and federal administrations
-



Tasks of the Energy Commissioner for Federal Building Works in Berlin

- Preparation of standardised and verifiable guidelines for the energy demand of buildings
- Appraisal of energy and building concepts in architecture contests
- Minimising the energy demand during the planning and construction phase
- Optimisation of energy supply concepts for the federal offices
- Promoting the broad utilisation of renewable energies (e.g. solar energy, free cooling etc.)
- Accompanying technical and economical appraisal of planning documents
- Analysis and documentation of the achieved energy efficiency in the federal offices



Minimising the energy demand



Ministry of Foreign Affairs

Facade area to the back yard
21.560 m²

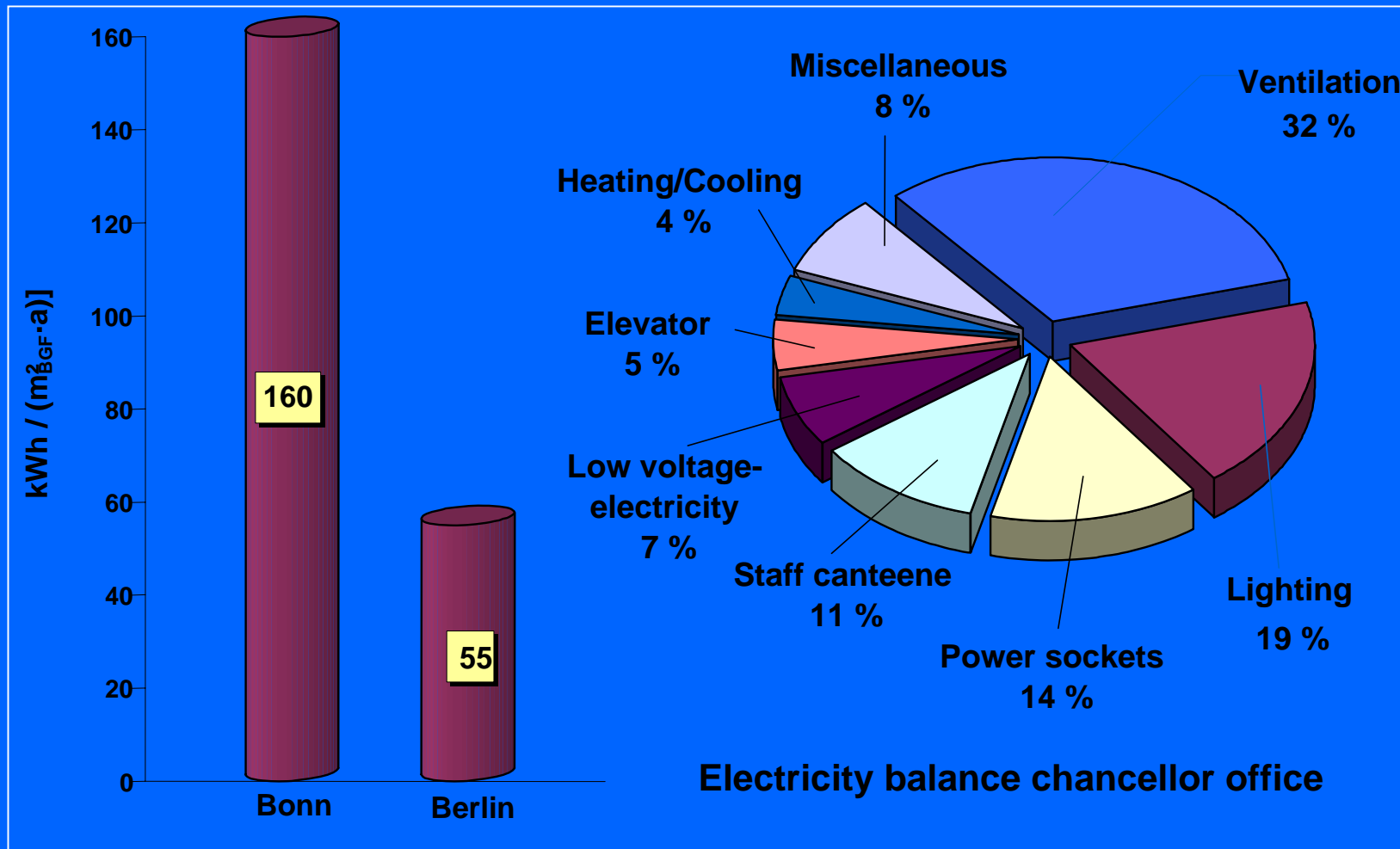
Additional Invest for heat insulation
1,2 Mio €

Energy saving
3695 MWh/a

Break even after
8 - 10 Years



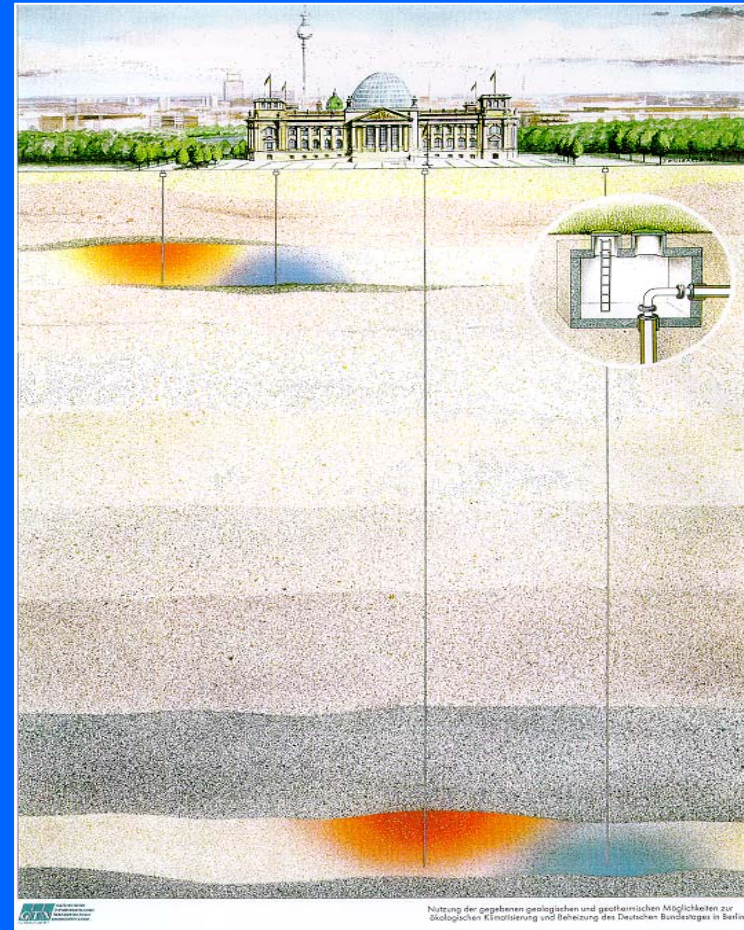
Results – Federal Chancellor Office



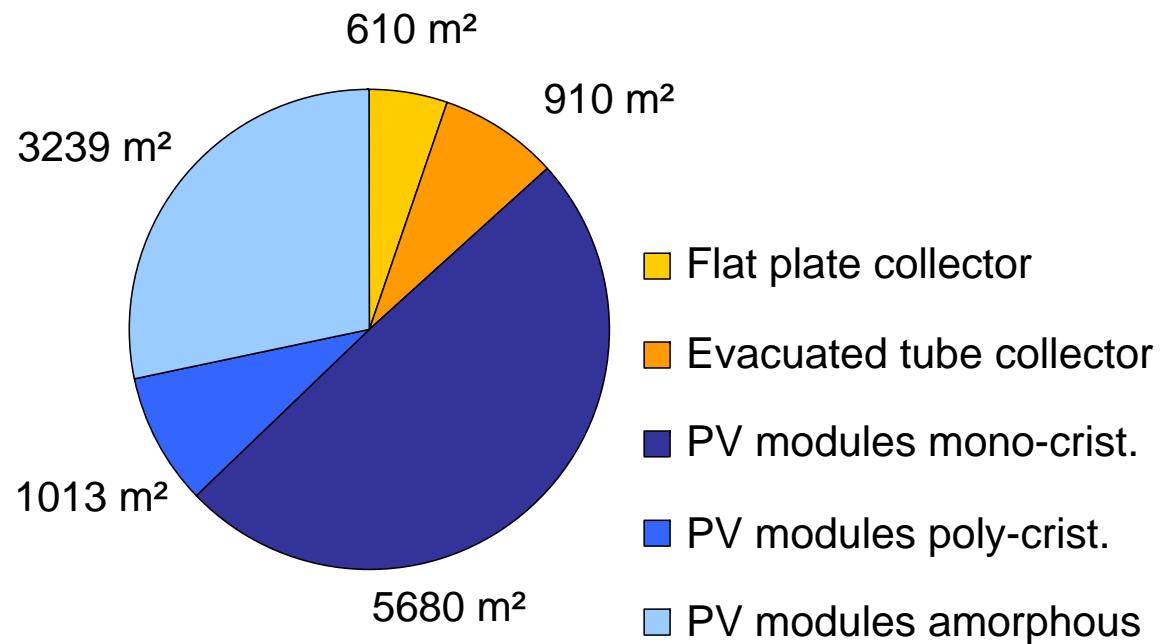
Energy concept for the parliament buildings



- Decentralised CHP-plants fired by rapeseed oil
- Seasonal heat and cold storage
- 5 PV-Systems



Solar energy systems at the federal building projects in Berlin



High efficiency energy concepts

- ☼ Minimizing the energy demand by
 - limitation of cooled areas
 - reduction of internal and external loads.
- ☼ Maximizing the energy efficiency by
 - application of cooling systems with high flow temperatures
 - reduction of pressure drops in air handling units.
- ☼ Optimization of the energy supply by
 - development of advanced supply structures for each real estate,
 - cold generation prior by waste heat or regenerative energy.

